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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
KHARE, DEVESH

ART UNIT	PAPER NUMBER
1623	

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No. 10/049,177	Applicant(s) BERLIN, KURT	
	Examiner Devesh Khare	Art Unit 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. PCT/DE00/02755 .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claims 1-8 are currently pending in this application.

35 U.S.C. 112, second paragraph rejection

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-8 are rejected under the second paragraph of 35 U.S.C. 112, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(A) Claim 6 recites the term "n [sic]". However, the nature of the term "n [sic]" is not clear, rendering the claim vague and indefinite.

(B) Claim 6 lacks antecedent basis for the term "n [sic]". (i.e. it has not been established that this term have the meaning indicated in claim 1).

(C) Claim 7 provides for a method of using nucleoside derivatives in the manufacture oligonucleotides, but since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

(D) The phrase, in claim 8, line 3-4, "reagents and adjuvants as well as solvents" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 7 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

35 U.S.C. 103(a) rejection

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> *(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.*

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holmes et al. (WO 94/10128) in view of Giegrich et al. (Nucleosides and Nucleotides, 17, 1987-1996, 1998).

The claims 1-8 are directed to 2-(O-nitrophenyl)ethoxythiocarbonyl- protected nucleoside derivatives, a method of preparation of the said derivatives using thiophosgene, the use of the said derivative in the synthesis of oligonucleotides and a

kit containing the said nucleoside derivative. Additional claim limitations claimed include R_1 as adenine, cytosine, guanine, thymine or uracil, R_2 –R_7 as an H atom or an alkyl residue or R_2 as a diisopropylamino-(2-cyanoetoxy)phosphinyl group of the formula IV.

Holmes et al. teach C-5'OH-2-(O-nitrophenyl)ethoxythiocarbonyl- protected nucleoside derivatives and a method of preparation of the said derivatives (see page 4, summary of invention). In claims 30 and 37, the 2-(O-nitrophenyl)ethoxythiocarbonyl-protected nucleoside derivatives of a purine, a pyrimidine, or an analog thereof are disclosed. Holmes et al. also disclose a method of preparation of nucleoside derivatives having the 2-(O-nitrophenyl)ethoxythiocarbonyl- protecting group at C-5'-OH, the synthesis involves the steps of reacting a protected benzyl alcohol (Fig. 3) with phosgene to produce benzyloxycarbonyl derivative which is coupled with the 5' oxygen of a nucleoside (page 24, last para.). It would have been obvious to use the thiophosgene to react with the benzyl alcohol of formula II (claim 6) to prepare the thiocarbonyl chloride which is coupled with the 5' oxygen of a protected nucleoside. While the Holmes et al's 2-(O-nitrophenyl)ethoxythiocarbonyl- protected nucleoside derivatives and a process for their preparation are closely analogous to the applicant's nucleoside derivatives and the method of their production, Holmes et al's. 2-(O-nitrophenyl)ethoxythiocarbonyl- protected nucleoside derivatives differ from applicant's 2-(O-nitrophenyl)ethoxythiocarbonyl- protected nucleoside derivatives in that the C-2'-OH is not substituted with a diisopropylamino-(2-cyanoethoxy)phosphinyl group.

Giegrich et al. teach a nucleosides protected by the 2-(2-nitrophenyl)ethylsulfonyl group (see abstract) . Giegrich et al. disclose the nucleoside derivatives wherein the C-5'-OH is protected by 2-(O-nitrophenyl)ethoxycarbonyl group and C-2'-OH is protected by diisopropylamino-(2-cyanoethoxy)phosphinyl group (see figures on page 1992). It is noted that von Giegrich et al. does not provide specific disclosures regarding the use of a 2-(O-nitrophenyl)ethoxythiocarbonyl protecting group at C-5'-OH.

Therefore, one of ordinary skill in the art would have found the applicants claimed C-5'-OH- 2-(O-nitrophenyl)ethoxythiocarbonyl- and C-2'OH- diisopropylamino-(2-cyanoethoxy)phosphinyl protected nucleoside derivatives , a method of their preparation to have been obvious at the time the invention was made having the above cited references before him. Since Holmes et al. teach C-5'-OH- 2-(O-nitrophenyl)ethoxythiocarbonyl- protected nucleoside derivatives and a method of preparation of the said derivatives and Giegrich et al. teach a nucleoside protected at C-2'-OH by the diisopropylamino-(2-cyanoethoxy)phosphinyl group, one skilled in the art would have a reasonable expectation for success in combining both references to accomplish a nucleoside derivative protected by the 2-(O-nitrophenyl)ethoxythiocarbonyl at C-5'-OH and diisopropylamino-(2-cyanoethoxy)phosphinyl at C-2'-OH and a process for their preparation. The motivation for doing so is provided by Holmes et al., which suggests the use of ortho-nitrobenzyl

photosensitive protecting groups to protect functional groups of nucleosides from unwanted side reactions during polymer synthesis (page 4, lines 15-24).

Regarding claim 8, the printed matter on a label or package insert (operating instructions) does not lend patentable weight as a limitation of the claimed product, composition, or article of manufacture, absent a functional relationship between the label or package insert and the product, composition, or article of manufacture. See In re Haller 73 USPQ 403 (CCPA 1947), where it is held that application of printed matter to old article cannot render the article patentable. In the opinion text of In re Haller, it is stated that: Whether the statement of intended use appears merely in the claim or in a label on the product is immaterial so far as the question of patentability is concerned. In accordance with the patent statutes, an article or composition of matter, in order to patentable, must not only be useful and involve invention, but must also be *new.* If there is no novelty in an article or composition itself, then a patent cannot be properly granted on the article or composition, regardless of the use for which it is intended. The difficulty is not that there can never be invention in discovering a new process involving the use of an old article, but that the statues make no provision for patenting of an article or composition which is not, in and of itself, new.

Also see In re Venezia 189 USPQ 49 (CCPA 1976), where kits are drawn to the structural attributes of interrelated component parts and not to activities that may or may not occur. Further, In re Miller 164 USPQ 46 (CCPA 1969) and In re Gulak (CA FC)217 USPQ 401 relate to a mathematical device and to a measuring cup

respectively. In each of these cases, the printed matter is considered a patentable distinction because the function of the device depends upon the printed matter itself which is a part of the substrate; without the printed indicia or numbers, the substrates lose their function. Such is not the case with the instantly claimed articles. The nucleoside derivatives of Holmes et al. remain fully functional absent the labeling or printed instructions for use.

It is further noted that the written material in the instructions is not considered to be within the statutory classes and does not carry patentable weight. See MPEP 706.03(a).

Thus the instructions for use included in a kit or article manufacture constitute an "intended use" for that kit or article of manufacture.

Intended use does not impart patentable weight to a product. See MPEP 2111.03: Intended use recitations and other types of functional language cannot be entirely disregarded. However, in apparatus, article, and composition claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963).

In the instant case, the claims are drawn to an article of manufacture which comprises oligonucleotides, and operating instructions. The intended synthesis which is

recited on the label or package insert lacks a function relationship to the nucleoside derivative because the insert or label does not physically or chemically affect the chemical nature of the nucleoside derivative within the article of manufacture. Therefore the synthesis of oligonucleotides which is comprised within the article of manufacture is unpatentable over the prior art nucleoside derivative, because they function equally effectively with or without the labeling, and accordingly *no functional relationship exists between the instructions for synthesis and the nucleoside derivative.*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Devesh Khare whose telephone number is (703)605-1199. The examiner can normally be reached on Monday to Friday from 8:00 to 4:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, Supervisory Patent Examiner, Art Unit 1623 can be reached at 703-308-4624. The official fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-4556 or 308-4242. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

JAMES O. WILSON
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Devesh Khare, Ph.D.,JD(3Y).
Art Unit 1623
September 17,2003